USGS
science for a changing world

Water Information Programs in Kansas

Mission of the U.S. Geological Survey

The U.S. Geological Survey, part of the U.S. Department of the Interior, provides the Nation with reliable, impartial information to describe and understand the Earth. This information is used to:

- Minimize loss of life and property from natural disasters
- Manage water, biological, energy, and mineral resources
- Enhance and protect the quality of life
- Contribute to wise economic and physical development

Water Programs in Kansas

The U.S. Geological Survey (USGS) has collected hydrologic information in Kansas for more than 100 years. This information consists of streamflow and gage-height data; reservoir content; water-quality and water-quantity data; suspended-sediment data; and ground-water levels. Hydrologic investigative projects are conducted on statewide, regional, and local levels. The USGS in Kansas works cooperatively with 22 Federal, State, and local agencies, such as the Kansas Water Office, the U.S. Army Corps of Engineers, and the city of Wichita.

Current Activities of the U.S. Geological Survey in Kansas

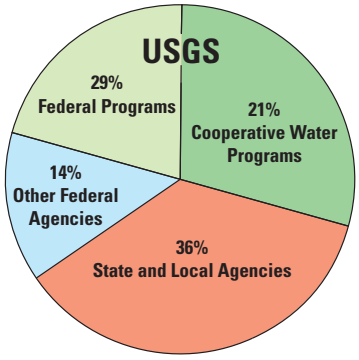
National Programs

- Research into occurrence and movement of pesticides and antibiotics in the environment
- Application of hydrologic modeling to USGS National Water-Quality Assessments
- National evaluation of State ambient water-quality data

Statewide Programs

- Streamflow monitoring at 170 locations for flood forecasting, reservoir operations, and many other uses
- Monitoring of real-time water-quality conditions at 15 locations
- Statistical evaluation of Kansas streamflow
- Compilation of State water-use data
- Assessment of sedimentation in Kansas reservoirs

FY04 ~ $6.6 MILLION
FUNDING SOURCES



Programs in Congressional District I

- Determination of water-quality conditions in Cheney Reservoir and watershed
- Flood mapping of Wabaunsee County

Programs in Congressional District II

- Determination of water-quality conditions and ammonia assimilative capacity of the Kansas River
- Metals contamination of Empire Lake and Spring River in southeast Kansas
- Monitoring of hydrologic conditions at Fort Riley
- Determination of water-quality conditions on the Prairie Band Potawatomi Reservation
- Study of Neosho River gravel and endangered species habitat

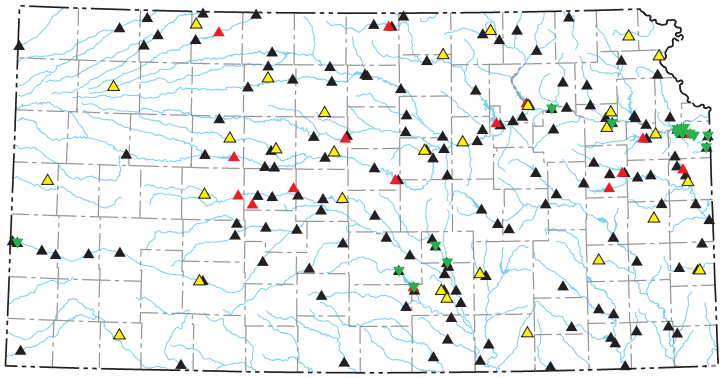
Programs in Congressional District III

- Determination of water-quality conditions and ammonia assimilative capacity in the Kansas River
- Determination of stormwater quality, Johnson County
- Determination of water-quality conditions in Lake Olathe and watershed

Programs in Congressional District IV

- Determination of water-quality and quantity effects of *Equus* Beds aquifer recharge project
- Flood warning and inundation mapping on Cowskin Creek, Wichita
- Ground-water availability in the lower Arkansas River alluvial aquifer south of Wichita

USGS STREAMFLOW, LAKE-ELEVATION, AND WATER-QUALITY GAGES



For additional information, please contact Walt Aucott at (785) 832-3505 or E-mail waucott@usgs.gov, or visit http://ks.water.usgs.gov/

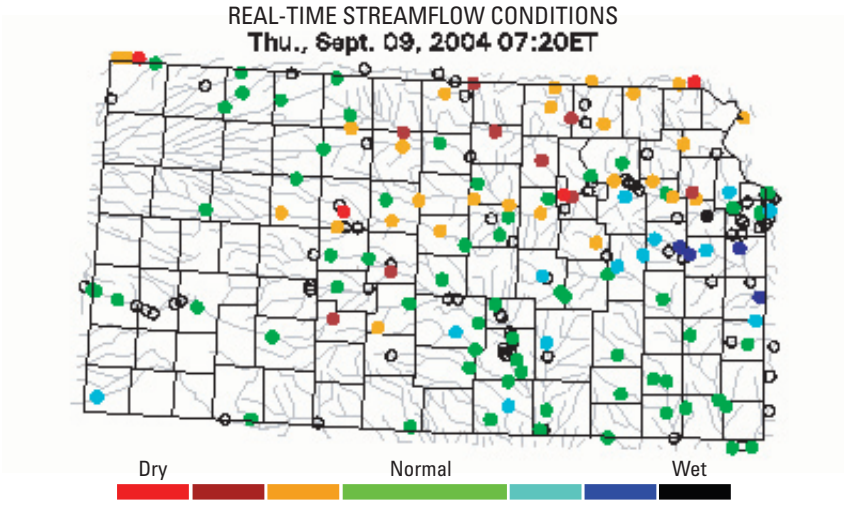
USGS Streamflow Information

Continuous real-time information on streams is a vital Kansas asset that can safeguard lives and property and ensures adequate water resources for a healthy State economy. The USGS operates more than 170 water-monitoring stations that keep watch on Kansas streams. The majority of these stations are jointly funded in partnerships with local, tribal, State, and other Federal agencies. The USGS real-time water-monitoring network provides long-term, accurate, and unbiased information that meets the needs of customers.

http://ks.waterdata.usgs.gov/nwis/sw

Uses of Continuous Real-Time Streamflow Information

- **State and local water-management and supply agencies—**to plan, monitor, regulate, and adjust water withdrawals
- **National Weather Service River Forecast Centers—**to determine flood stages for various streams and to help forecast when and where streams will crest during floods
- **U.S. Army Corps of Engineers—**to most efficiently schedule reservoir releases
- **Kansas Department of Transportation—**to safely and efficiently design bridges, highways, and culverts that will convey sufficient streamflow so that roadways and bridges remain above water during flooding and escape structural damage
- **Federal Emergency Management Agency—**to delineate flood-prone areas, develop flood-insurance rates, and address emergency-response needs before, during, and after flooding
- **Fishermen, swimmers, and boaters—**to monitor water conditions for safe, optimum recreational use



USGS Reservoir Sediment Studies in Kansas

An understanding of the quantity and quality of sediment deposited in a reservoir is necessary for effective reservoir and basin management. Sedimentation affects both the useful life of a reservoir for such important purposes as flood control and water supply as well as its aesthetic quality. Sediment quality is an important environmental concern because sediment may act as a sink for water-quality constituents and as a source of constituents to the overlying water column and biota. Once in the food chain, sediment-derived constituents may pose an even greater concern due to bioaccumulation. An analysis of reservoir bottom sediments can provide historical information on sediment deposition as well as magnitudes and trends in water-quality constituents from the watershed that are associated with sediment such as phosphorus, metals, some trace elements, and pesticides.

The USGS, in cooperation with local, State, and Federal agencies, has conducted 22 reservoir sediment studies in and near Kansas.

Key findings include:

- **Loss of storage of 20–50 percent in some northeast Kansas reservoirs due to sedimentation**
- **Numerous metals and arsenic exceeding USEPA sediment threshold biological effect levels in many reservoirs**
- **Documentation of watershed contaminant yields useful for total maximum daily load (TMDL) and watershed restoration programs**

http://ks.water.usgs.gov/Kansas/studies/ressed